

ART. VI.—*Some New Localities for Minerals in Victoria.*

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A NEW locality of zeolites has been found by Mr. Norman Taylor at the corporation quarries, Merri Creek. Mr. Taylor found fine druses and crystals of phacolite and phillipsite, many of the crystals being larger than any previously discovered. Since then Mr. Rule has found very fine crystals of aragonite, perfect hexagonal prisms and pyramids. Mr. Taylor has given me the following note of the mode of occurrence:—"The basalt at the Merri Creek corporation quarries has been erupted in different flows. The surface is vesicular and partly decomposed, passing downwards through largely vesicular into dense rudely columnar basalt. The cavities in the vesicular parts are coated with carbonate of lime. Below this is a very vesicular decomposed basalt, the surface of an older flow. In some places it is changed into soapy clays. The cavities in many parts are coated with mammillated ferrocalsite, and a soft white hydrous dolomite of about the consistence of soft putty. It sometimes may be procured in masses several inches in diameter." Some of the lumps are covered by a thin crust of hydrous silica. The soft masses seem gradually to part with water, and become converted into a variety of dolomite. An analysis of a dried portion gave:—Carbonate of magnesia, 71·34; carbonate of lime, 25·80; carbonate of iron, 1·30; water, 1·10; total, 99·54. In some of the cavities this mineral is in the form of the so-called "rock milk," but that mentioned by Dana is carbonate of lime, not magnesia. The water, separated from the solid mineral, contains lime, magnesia, and silica in solution. The basalt becomes denser below this to the floor of the top quarry, which seems to be the top of a still lower flow; in this top quarry are found rarely the fine crystals of aragonite mentioned. The ordinary radiating masses of aragonite are common. The zeolitic minerals begin to occur at the floor of this quarry or ledge; as yet only phacolite and phillipsite have been identified. The basalt they occur in is dense, and contains cavities of all sizes, the bottoms of which are covered with a deposit of greenish, greasy clay, usually

covered with a thin, crystalline, transparent, zeolitic crust (undetermined), but not either of those already found. On this occur calc spar and dog-tooth spar in orange-brown crystals, and often on them again have been deposited the phacolite and phillipsite, which also line the upper portions of the cavities. Sometimes the zeolites occur perfectly crystallised on the ends of thin needles of calc spar, a fresh cavity looking as if the needles held glittering drops of dew in suspension. The zeolites often occur together in the same cavity, and seem to have been deposited simultaneously. Peculiar lumps, generally loaded with fine crystals, occur in many cavities. As these lumps are part of the basalt mass, they have probably been formed by pressure on the cavities during the cooling of the molten basalt." The zeolites appear to be more numerous where water has percolated through the basalt. The water contained in the cavities is highly charged with mineral matter. Only a small quantity has yet been obtained for examination. This gave a residue on evaporation equal to 1 per cent., consisting of chlorides of calcium, sodium, and aluminum, with silica and ammonia, and may be looked on as the mother liquor from the crystallisation of the zeolites. Another zeolite, stilbite, has recently been found, for the first time in Victoria, as a crystalline vein in the mesozoic sandstone near Ceres Bridge, Barrabool Hills. Bindhiemite—hydrous antimoniate of lead—is another mineral new to us; has been found with the steinmanite from the Murindal lead mines. Mr. Rule has reported the occurrence of both these minerals. Pyrolusite, new to Victoria, is found as the cementing medium of a brecciated quartz conglomerate in the ranges, some fifteen miles from Moe, Gippsland. The crystals are small, almost microscopic. Tungstite, also new, occurring with wolfram and scheelite, is reported by Mr. Rule from a reef in a hill near the cemetery, Maldon. Scorodite.—Some interesting occurrences of this arseniate of iron have been found at Bethanga and Dry Creek, Strathbogie Ranges. They are both auriferous. The Bethanga specimens are massive and earthy, and of concretionary formation. The Strathbogie scorodite is in thin veins in a large auriferous dyke, these veins being evidently the result of the decomposition of arsenical pyrites *in situ*.